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ABSTRACT

Effectiveness of on-the-job training (OJT) in maintenance has become more important in recent years due to increased technological sophistication of military equipment and systems, the diversity of tasks which a service person may be asked to perform, and the need for persons to have skills necessary to move within their speciality area. There are deficiencies in current OJT including problems caused by the work situation and environment and the way the trainee is managed within it. In addition, problems arise when there is failure to enhance the work experience with proper resources, most importantly trainers. There is a lack of qualified OJT trainers and, even when available, good trainers may be poor instructors. A general solution is to formalize the task training portion of OJT in each operating unit. All apprentices should master certain skills identified by informed and concerned supervisors. The quality of instructors must be upgraded and task training must be done realistically (using actual equipment, experiencing malfunctions and unscheduled maintenance). Training should be given when the need arises. Management of training must insure relevance to the job. Successful training programs include the Air Force Task Oriented Training and Maintenance Training Management. (FP)

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PUTTING ON-THE-JOB TRAINING UNDER NEW MANAGEMENT TO IMPROVE ITS EFFECTIVENESS

Polly Carpenter-Huffman

March 1979

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SUMMARY

This paper presents a set of guidelines for maintenance OJT to improve its effectiveness. Effective OJT is essential to mission support; improved OJT effectiveness is needed in many specialties because of the greater demands placed on maintenance personnel by advanced technology and because of the greater diversity of equipment and duty stations in today's military environment. Deficiencies in current OJT programs arise from the nature of the working environment and from disincentives that encourage only superficial adherence to the services' policies for OJT. The content, resources, and management of preferred approaches to OJT are described. In particular, formalized conduct of OJT by separate units within the operating commands is advocated. Successful OJT programs that have followed this approach are described as evidence of its practicality and utility.

This paper was prepared for presentation at the Third Biennial Maintenance Training and Aiding Conference conducted during February 28 through March 2, 1979. The conference was sponsored by the Naval Air Systems Command and hosted by the Human Factors Laboratory, Naval Training Equipment Center, Orlando, Florida.

INTRODUCTION

In peacetime, training is one of the main purposes for the conduct of military operations. Although the resources required to support operational training activities are not budgeted for training as such, clearly their cost is far greater than the cost of formal training. Moreover, the training given in operating units is essential for maintaining readiness. In many specialties readiness can be more significantly improved by improving the effectiveness of operational training than by improving training in technical schools.

Effective OJT also alleviates problems of local management by assuring supervisors that people are capable of performing tasks for which they have been "signed off," thereby supplying identifiable groups of competent workers.

The portion of OJT that qualifies people to perform tasks is the link between school training and performance on the job. Therefore, improvements in this aspect of OJT can also lead to increased efficiency in school training by better identifying its content or by decreasing the need for school training in specific tasks.

The effectiveness of OJT for task performance has become more important in recent years for several reasons. One is the increased technological sophistication of military equipment and systems, which places greater demands on maintenance personnel. Even systems that have been designed to minimize demands for maintenance in the field often require special skills that are inadequately taught in an

introductory course.[1] Another reason is the diversity and proliferation of systems in the field. For example, in the division forces of the Army there are now about 0.7 items of major equipment for every soldier.

Although school training can give people a general preparation to cope with this environment, it is difficult for school training to qualify the graduate for job performance. For one thing, actual job conditions often are not duplicated in school training. Moreover, so many variations in the working environment are possible that attempts to duplicate all possibilities would make training excessively expensive.

McLarty, an instructor in the Armor school at Fort Knox, graphically describes the situation for the turret mechanic specialty:

> (In formal training)...the student learns his skill within a classroom and laboratory environment. ... All manuals, tools, and test equipment required to diagnose and repair faults are readily available. A skilled instructor, along with a group of peers, is available to render advice and assistance,... In the field, the turret mechanic finds that maintenance, instead of being the primary focus of each day's activities, is now ancillary to a multitude of missions. ... Turret trainers and reasonably comfortable laboratories have been replaced by functioning combat vehicles with myriads of faults and shortcomings; and a motor pool or trains area that most likely is exposed to whatever Mother Nature has to offer. ... He may often be required to work alone, or with only tank crewmembers to detect and correct malfunctions. He may well find that his unit is short tools and test equipment that were readily available in school. (McLarty, 1978. p. 9).

[1] See, for example, Carpenter-Huffman and Rostker, 1975.

Beyond what may be relatively minor variations in local conditions, we have already mentioned the diversity of tasks with which the service person may be faced in the field, even within a single specialty. In the Army, for example,

> A soldier in MOS 11B1 may serve in anyone of 33 jobs (duty stations) when he leaves his one-station unit training ... and goes to a unit. ... Before he is sent to his unit, the 11B1 soldier is currently trained in only five jobs... These are among the highest density jobs, so the odds are he will wind up in one of them. But, what if he does not? Well, he must then be trained on the job by his supervisor...
>
> In other MOS the problem is one of difference in equipment as compared to number of jobs. An artilleryman in MOS 13B, for example, may work with any one of five cannon weapons systems when he completes his entry training...he is trained (only) on the most prevalent, the self-propelled 155 Howitzer, M109E1. (Department of the Army, pp. 3-1 and 3-2).

Similarly, the Air Force Ground Radio Equipment Maintenance career field (304X4) encompasses 4 distinct jobs for first-term airmen.

Although this problem may partly be resolved by tailoring training to the job of first assignment (resulting in several different initial courses within the same specialty), the problem remains of insuring that persons have the needed skills when they move about within the specialty (or if they are initially misassigned) and when they upgrade.

In sum, initial training in formal schools will rarely be sufficient to fully qualify maintenance personnel for their first jobs because job performance is more or less idiosyncratic to the work environment. In addition, OJT will always be needed for upgrade training, to

refresh skills in important tasks that are rarely or never performed in the normal work situation, and to introduce new equipment or procedures.

People in the field often view properly conducted OJT as the most effective of all training the service has given them. Although this view may partly be due to myopia (since their OJT is the freshest in their memories), it is true that OJT teaches job performance by guided practice, generally considered the most effective method of teaching skills.[1] In addition, OJT is largely generated by immediate maintenance needs, which helps insure its relevance.

In what follows I shall present evidence of present problems in OJT and discuss their underlying causes. These problems are not found in all maintenance specialties, but often arise in those in which maintenance personnel work under difficult conditions or are under production pressure. Next, I shall propose a general approach to resolving these problems and describe instances in which application of similar approaches has improved OJT. My intent is to urge fundamental changes in the management of OJT and to present some guidelines for improvements in OJT for maintenance specialties in each service. I shall not deal with aspects of OJT such as correspondence courses that may support, but do not directly teach, job performance.

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[1] See, for example, Air Training Command, 1968 and 1970; Pieper, et. al., 1970; Taylor, et. al., 1972; Weingarten, et. al., 1972.

DEFICIENCIES IN CURRENT OJT

Several years ago the Tactical Air Command (TAC) administered a questionnaire at all operating bases where advanced avionics were maintained, as part of an effort to improve management and training of avionics maintenance personnel.[1] This questionnaire included open-ended questions eliciting respondents' reactions to their OJT. Many assessed OJT as having been the most useful of all the training they had received. Even OJT-enthusiasts, however, often noted deficiencies in the training or suggested improvements.

A recent Rand survey of personnel skilled in maintenance of Army land vehicles uncovered similar deficiencies.[2] Although I cite specific sources of evidence, however, I believe the deficiencies observed arise to a greater or lesser extent in many maintenance OJT situations.

The first set of problems is caused by the work situation and the way the trainee is managed within it. Scheduled and unscheduled maintenance tasks arise in response to the needs of the operating unit, not in response to training requirements. Thus, the trainee may have more than enough chances to learn one task, whereas he may never be exposed to other tasks equally necessary for journeyman qualification.

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[1] For a description of respondents' comments on formal training, see Carpenter-Huffman and Rostker, 1975.

[2] Documentation of the survey by Harz, part of the Rand Land Vehicle Maintenance Study for the Defense Advanced Research Projects Agency (DARPA), has not been released. The results, however, have been briefed to the Army as well as to DARPA.

In the words of one airman:

> The OJT program was not adequate because only certain areas of maintenance are consistently being worked on at this particular (air) base and other maintenance in other systems is rare or non-existent.

The vagaries of the work situation are exacerbated by the management of trainees. Trainee time may largely be absorbed by additional on-site training unrelated to the job (such as driver education), cleanup and other routine details, and doing errands. Many of the respondents to the TAC questionnaire complained about the amount of time required for "ridiculous squadron and barracks details" or about not being allowed to work on the aircraft. Although some of these complaints may have represented normal griping, many of them were voiced by more senior personnel who were not at the time burdened with "ridiculous" details.

Another set of problems arises from failure to enhance the work situation with resources needed specifically for training. The most important of these is a person who both knows and can teach the job (a trainer). Sheer unavailability of trainers was noted by many respondents to the TAC questionnaire. TAC feels its problem has worsened during the last few years in this regard because of a marked decrease in the authorized ratio of skilled to unskilled enlisted personnel. In 1973, TAC had for each person with grade E-1 through E-3, 1.76 people with grade E-4 through E-6. The corresponding ratio in 1978 was 1.04.

The Army faces similar difficulties. For example, McLarty noted that in the turret mechanic MOC:

> The fact is that we haven't really had a qualified turret mechanic supervisor in most units. This has been largely due to the fact that the organizational turret mechanic could only progress through grade E5 in his primary MOS. ... (McLarty, 1978, p. 10).

Even when the unit has people qualified to train others, these people may be forced by production demands to slight their training responsibilities. This is most likely to happen in specialties closely tied to mission operations, such as flight line aircraft maintenance.

In most instances, a person who has been designated as a trainer knows enough about the job to perform it. In some cases, however, particularly where relatively new equipment is involved, even the designated trainer is inadequately skilled, either because he has been pushed up the skill ladder without comprehensive OJT, because he has not had the chance to become familiar with the equipment, or because the specialty itself has newly been created. One Air Force staff sergeant stated flatly that:

> The OJT program is worthless. OJT trainers did not know enough about equipment to be trainers.

Lack of trainers with sufficient job performance skills is not limited to the most technologically advanced specialties, however. The Rand survey of Army land vehicle maintenance also noted that supervisors who were expected to train others needed much more thorough experience in each of the different maintenance

tasks -- repair, ordering parts, and completing forms, for example.

Finally, even when enough skilled personnel are available to provide the training required, persons assigned as trainers may be poor instructors. It is unlikely that a maintenance journeyman has been trained to teach, nor is there reason to believe that he has natural aptitude as a teacher. In addition, the overriding incentives for most trainers are to do the work, not to train someone else to do it. The most common single complaint about OJT on the TAC questionnaire was that those assigned as trainers were inadequate as teachers.

Normal operating equipment may also be inadequate for the training situation. For example, on the flight line trainers often need such minor items as additional headsets for instructing trainees. Thus, in addition to deficiencies in the availability or quality of instructors, problems may also arise from the lack of supplies or equipment needed specifically for training. Training equipment may be particularly useful for teaching sophisticated skills (such as troubleshooting) or performance of dangerous tasks.

CAUSES OF OJT DEFICIENCIES

Each of the services has established procedures for the conduct of OJT which, if they could be fully implemented, would help provide adequate training. In fact, respondents to both the TAC questionnaire and the Rand questionnaire urged that the OJT programs that exist "on paper" be put into effect to remedy training problems.

Mere exhortation to implement existing policy is unlikely to effect more than superficial, passing change, however, for two reasons. First, commanders are not immediately rewarded for the quality of their maintenance activities, let alone their maintenance OJT programs. Instead, they and those they command are penalized if documentation of progress in OJT does not conform to the schedule set for it. Second, as discussed above, for many specialties the normal work environment, in which OJT is to be conducted, is not conducive to effective training.

Let me expand briefly upon the problem of disincentives. The relative remoteness of maintenance activities from primary combat missions leads to widely varying and often inadequate emphasis on maintenance by managers and supervisors. In Army wheeled vehicle maintenance, Harz found that maintenance officers and NCOs are often lacking practical experience in their field. Harz also found that pressures to "come in as Category I" on the Operational Readiness report often destroy the validity and usefulness of vehicle preventive maintenance and operational readiness records.

On the other hand, since progress in OJT is tied to the promotion system, supervisors are under pressure to certify a person's competence whether or not the certification is warranted. For example, in the Air Force the supervisor designates for each person the skills necessary for his qualification, and one new 5-level may have mastered many job-related tasks while another may have mastered few or none. Thus, it is not too surprising to read the comments of one airman that:

> After 6 months you're given a 5-level whether you want one or not. Your abilities on the aircraft don't matter as long as you spent 6 months on this base. Therefore, there are many 5-levels who don't know anything more about the aircraft than the 3-levels assigned to them (as trainees).

Many other respondents to the TAC questionnaire urged that OJT cease being dominated by requirements for skill upgrading.

To cope with a similar problem, the Army is replacing the "MOS tests" with Skill Qualifying Tests (SQTs) to verify an individual's present skill level and to qualify him for award of the next higher skill level.

> Soldiers scoring 80 percent or above on the SQT will form a pool of soldiers who are qualified for award of the next higher skill level. Promotion quotas will be filled from that group first using additional criteria ... (Department of the Army, 1 April 1977, p. 4-5).

Thus, scores on the SQTs may provide sorely needed measures of OJT effectiveness.

A GENERAL SOLUTION

The approach I advocate is a formalization of the task training portion of OJT within the operating unit. Below I describe the content, resources, and management needed to improve OJT in those specialties in which it is currently deficient.

TRAINING CONTENT

All apprentices should master a set of skills identified by supervisors who are both concerned with and informed about the current job. These are the skills they feel are needed by a competent journeyman. This does not mean that all training content should be technical in nature, however. Other skills needed for adequate job performance, such as work planning, should also be taught. (U. S. Department of Labor, p. 20).

On the other hand, often when training is given in the normal work environment, the trainer fails to give adequate explanations of how or why a particular procedure is used; that is, whereas formal training may overemphasize abstract principles, OJT may slight them. Some understanding of why a procedure is followed not only helps the trainee cope with novel situations but also improves motivation. Probably it is most efficient to determine how much theoretical background is useful or necessary to support an individual's performance of a given task during instruction of that individual on that task.

Unless all training is done in the work environment, special provisions are needed to keep the content of training relevant to the job. This, primarily a management problem, is discussed further below.

TRAINING RESOURCES

As already discussed, maintenance personnel are not usually expert instructors, although many of them may empathize with the student and communicate well with him, as a good instructor must do. But a good instructor also must be able to schedule teaching situations to build on what the trainee already knows, arrange problems to highlight new learning and to provide practice for skills already learned, and adjust the pace of training to the trainee's needs and motivation. Of course, a good instructor knows the subject matter well enough to teach it, although he need not be the most skilled maintenance person in his specialty.

As with any skill, both aptitude and training are needed to produce a good instructor. Ideally, instructors should receive both initial training and OJT in how to instruct. (U.S. Department of Labor, p. 22).

At least part of task training must be conducted on actual equipment in a close approximation of the working environment. This is particularly important (and difficult) for maintenance that must be performed under difficult conditions, such as out of doors in bad weather or on equipment that is hard to get to. Showing trainees how to work under such conditions is an essential part of training.

Since operational equipment may not present sufficient opportunities for learning particular tasks, some task training may need to be conducted outside of normal operations. Preventive maintenance can sometimes be taught on equipment that is temporarily not needed (on the weekends, for example) or that is out of operation for some reason that will not interfere with the training. Each of these situations introduces problems of scheduling, but a determined instructor can often work around them.

Bonafide malfunctions should also be used to teach skills in unscheduled maintenance. Although this again puts the teaching at the mercy of production schedules, more advanced trainees working in realistic situations will learn about production pressures as they practice job performance. Before they reach this point, however, they need to have mastered task performance skills in structured training experiences.

Maintenance simulators, just now coming into use, may have application in this area; I'm sure their many advantages will be fully dealt with in the course of this conference. I would like to make two points in this paper -- 1) the utility of maintenance simulators should be examined for OJT as well as for school training, and 2) because the trainee needs to learn to do his job in the working environment, simulators should not carry the entire burden of task training.

Similarly, facilities for OJT should include a mixture of realistic and training-oriented settings. Much of training could take place in a laboratory-like environment, but at least some of it should be

conducted in an actual work setting or a reasonable facsimile of one. Realism is most important for specialties in which working conditions can be difficult, as mentioned earlier. "Field trips" should be scheduled both to observe on-going maintenance and to conduct it *in situ*. Field training sessions might be scheduled for off-days or in special areas to minimize disruption of regular maintenance. Instructors could "walk trainees through" a job from beginning to end and familiarize them with the activities and processes that generate maintenance tasks and that support them (e.g. maintenance control, supply points, and quality control). Duren has urged this type of training for flightline avionics maintenance. (Duren, 1976, p. 7).

Ideally, training should be given when the need for it arises in the work environment. This maximizes the trainee's opportunity to relate what he is learning to job performance and enhances his motivation to learn. As suggested earlier, however, production pressures can override training opportunities. In addition, normal work schedules may not give rise to training opportunities with the frequency needed. Thus, the timing of training needs to be closely linked to but not dominated by the work environment. One way to achieve such a mix is for the trainee to work part of the day and train part of the day.

TRAINING MANAGEMENT

The first question is, what agency should administer the approach to task training I am advocating? Since I have emphasized the training process -- scheduling of teaching sequences, competent instructors,

equipment designed for training -- it might be argued that an organization whose major mission is training would be most appropriate.

In fact, service training organizations often establish temporary or permanent training units in the field; some of these are effective in bridging the gap between formal training and job performance. The Field Training Detachments (FTDs) of Air Training Command, for example, have several advantages over the technical schools because of their proximity to the workplace. FTD instructors are better able to maintain relevant course content because it is easier for them to visit the work centers to observe the latest techniques in job performance and to find out what shop supervisors need in the way of training. Often FTD instructors have had considerable experience in the unit and with the unit equipment and can draw from working expertise in their teaching. Training equipment used at the FTDs is more realistic than that at technical school, and the operating unit may make spares available to keep training equipment working or may allow FTD instructors to conduct training on equipment from the operating inventory.

Despite its proximity to the workplace, however, the FTD can also become isolated from the job. In avionics maintenance training, for example, FTD instructors and students rarely had access to actual aircraft and never used real malfunctions as opportunities for training. In fact, the physical demands of FTD duty, were considerably less than those of the flight line, and opportunities for self-direction were greater. Thus, people assigned to FTD usually wanted to remain there,

and it took an aggressive and hard-working person who was willing to put in extra hours to maintain his practical expertise. It was not surprising that some FTD courses were strongly supported by the users; others were condemned as irrelevant. (Carpenter-Huffman and Rostker, p. 76).

It is difficult to satisfy requirements for training relevance when instructors are ultimately responsible to a relatively remote organization whose major mission is training. If, however, the training is administered by persons responsible to those who employ their students (that is, by persons assigned to the operating command), incentives to maintain training relevance will be stronger. Although it may be difficult to keep such training from being captured by production needs, setting aside a separate activity for maintenance training will provide better protection than does the usual approach to OJT. Thus, I advocate that the operating commands fulfill their current responsibilities for maintenance OJT by administering it formally within units separated from maintenance production.

The Navy's FRAMP (Fleet Readiness Aviation Maintenance Personnel) units appear to come close to meeting the specifications I have been discussing. Their mission is to train enlisted people to maintain specific aircraft. After formal schooling, practical maintenance training is conducted on fully operational FRAMP aircraft and supporting equipment dedicated to training in a separate facility. This training, provided by qualified petty officers within the appropriate maintenance specialties, is followed by OJT within the operational unit.

Although Naval policy dictates that maintenance training is to receive the same emphasis as pilot training, maintenance OJT aboard ship is probably often less effective than is maintenance OJT at Army posts or Air Force bases. This seems likely because ship-board resources are of necessity constrained by space limitations, a circumstance that may severely reduce the opportunities and resources for OJT. Because of this problem, shore-based training may be the best solution to the Navy's OJT needs, even though it provides a poor approximation to the operational environment.

For each Service, it will be complicated to determine how many maintenance training organizations are needed for each specialty or, possibly, for combinations of specialties dealing with different items of equipment or systems. The heterogeneity of the specialty, the number of people within it, its technical complexity, and the cost of different configurations would all have to be considered. Quite possibly, not every operating location would need such an organization; rather, some training might be concentrated at a few locations.

Such a unit would ease the transition of the new assignee from formal training to work performance. It would also provide the continuation training needed for people changing duty stations or equipment, to assure continued job proficiency, to prepare people for upgrading, and to facilitate adjustment to changes in technology or procedures. (Department of Labor, p. 21).

I have already suggested the importance of evaluation in assuring the effectiveness of OJT. The Department of the Army SQT pamphlet supplies an excellent general description of procedures that should be used for such an evaluation. Should the separate unit for training administer such evaluations? The answer is probably "no" (except for interim evaluations), since that would put the unit in the position of evaluating its own product. Thus, it would be better for a different unit, say one associated with maintenance quality control, to administer definitive evaluations of OJT trainees.

It is unfortunate that upgrading is so closely tied to certification of OJT progress that progress is falsified to satisfy the upgrade schedule. Such falsification obviously does not help the commander assess the maintenance capabilities of his unit. If upgrading is as automatic as some have implied, occurring at the six-month point regardless, OJT could be decoupled from it with little ill effect. Certainly patently undesirable persons could still be denied promotion, and other ways could be found to reward outstanding performers.

EXAMPLES OF EFFECTIVE OJT PROGRAMS

The approach described above has been applied in the field and proven to be effective. I have already mentioned the FRAMP, which appear to be highly successful for the Navy. I am, however, most familiar with the Task Oriented Training (TOT) program instituted by TAC during 1975-1976, whose objective was to provide more effective practical training to TAC maintenance personnel.

> Task oriented training will teach a man the knowledge and skills necessary to perform specific tasks that are required in his current job assignment. This program will produce more capable graduates in a shorter amount of time who are able to perform the duties required by their supervisors. This will reduce the training burden on supervisors and complement the qualification requirements of the OJT practical channel. (Headquarters TAC, March 1975, p. 1).

Maintenance Training Management (MTM) was responsible for managing the TOT program, which required close interaction between wing personnel and the local FTD. For example, a Plan of Instruction was written jointly by MTM and FTD personnel. FTD personnel conducted all academic training and some practical training, with assistance by a TAC Instructor Augmentee, a job-qualified person assigned to the TOT course. The Augmentee conducted whatever practical training the FTD could not conduct and signed off maintenance actions taken on operational equipment, if sign-off was required and the FTD instructor was not qualified to do so. Final certification of the trainee's job proficiency remained the responsibility of shop management personnel.

The most significant feature of the TOT program was that TAC committed its own aircraft, equipment, and personnel to be used for hands-on training and that these commitments were included in formal course documentation. This commitment required TAC to

> devise scheduling procedures to incorporate training course, aircraft, equipment and personnel requirements into monthly and weekly published utilization schedules. (Headquarters TAC, February 1975, p. 4).

Late in 1974, a number of TOT courses were evaluated in various ways. One, conducted by quality control personnel, was of the ability of TOT graduates to perform specific tasks. No discrepancies in task performance were noted for 35 3-level graduates at Seymour Johnson Air Force Base.

> It is significant to note that graduates of former FTD courses, which were not "task oriented," were not capable of being immediately administered MSEP (Maintenance Standardization and Evaluation Program) evaluations due to the fact that they were taught system orientation versus task orientation. (Minutes of January 21-23, 1975, Task Oriented Training Conference, p. 1).

Although TOT is no longer a separate TAC program, TAC has continued to press for formalized, practical training in maintenance specialties that have suffered from inadequate OJT in the past, especially those in which people work under production pressure. One significant result has been that many FTD courses are being designed fully to qualify maintenance personnel on a specified set of frequently performed tasks. (Headquarters TAC, 1978, pp. 3-1, 3-2).

McLarty describes a less structured approach that has been used for orienting new turret mechanics to their jobs.

> Regardless of how serious your turret problems may be, a few weeks spent in unit orientation and closely-supervised training will pay dividends in the long run. Some units, usually those who indicate the most satisfaction with their turret mechanics, keep newly assigned turret mechanics at battalion level for a period of 2 to 3 weeks prior to assigning them to a line company. During this period they conduct formal ... (OJT) which acquaints the men with unit standard operating procedures ..., battalion supervisory personnel, provides additional training in those areas currently comprising unit problem areas, reviews skills learned as much as 2 to 3 months earlier, and teaches those tasks not formally taught at the Armor School. This period of time also provides an important transition period during which the new turret mechanic adjusts to the differences between school and unit environments. ... The battalion turret mechanic supervisor, Master Gunner, or senior turret mechanic is normally charged with supervising this training, and all can assist. (McLarty, p. 10).

Similar approaches were urged for Army land vehicle maintenance MOS currently suffering for lack of skilled maintenance personnel.

CONCLUSIONS

In this paper I have sketched an approach to maintenance OJT that will, I believe, relieve the deficiencies exhibited by many current programs, particularly those that are the responsibility of maintenance personnel working in a production environment. The approach I have described has been distilled not only from accepted principles of training but from the example of successful OJT programs in the field.

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